JOHANNESBURG WEST DISTRICT

GRADE 10

CONTROLLED TEST

MATHEMATICAL LITERACY

04 SEPTEMBER 2024

MARKS: 50

TIME: 1 hour

This question paper consists of 7 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. Start EACH question on a NEW page.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

QUESTION 1

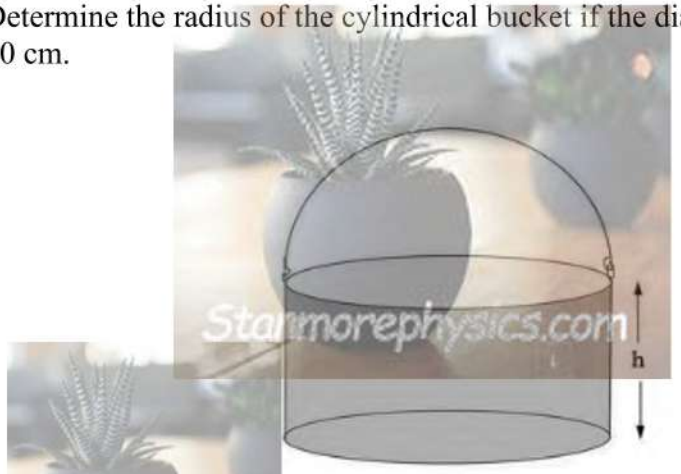
1.1 Define the term **"perimeter"**. (2)

1.2 State whether the following statement is true or false.

Units of area is: mm^2; cm^2; m^2; km^2

(2)

1.3 Determine the radius of the cylindrical bucket if the diameter of it is 20 cm.



(2)

1.4 Interpret the scale 1: 50 000. (2)

1.5 Choose the correct answer from the options listed below.

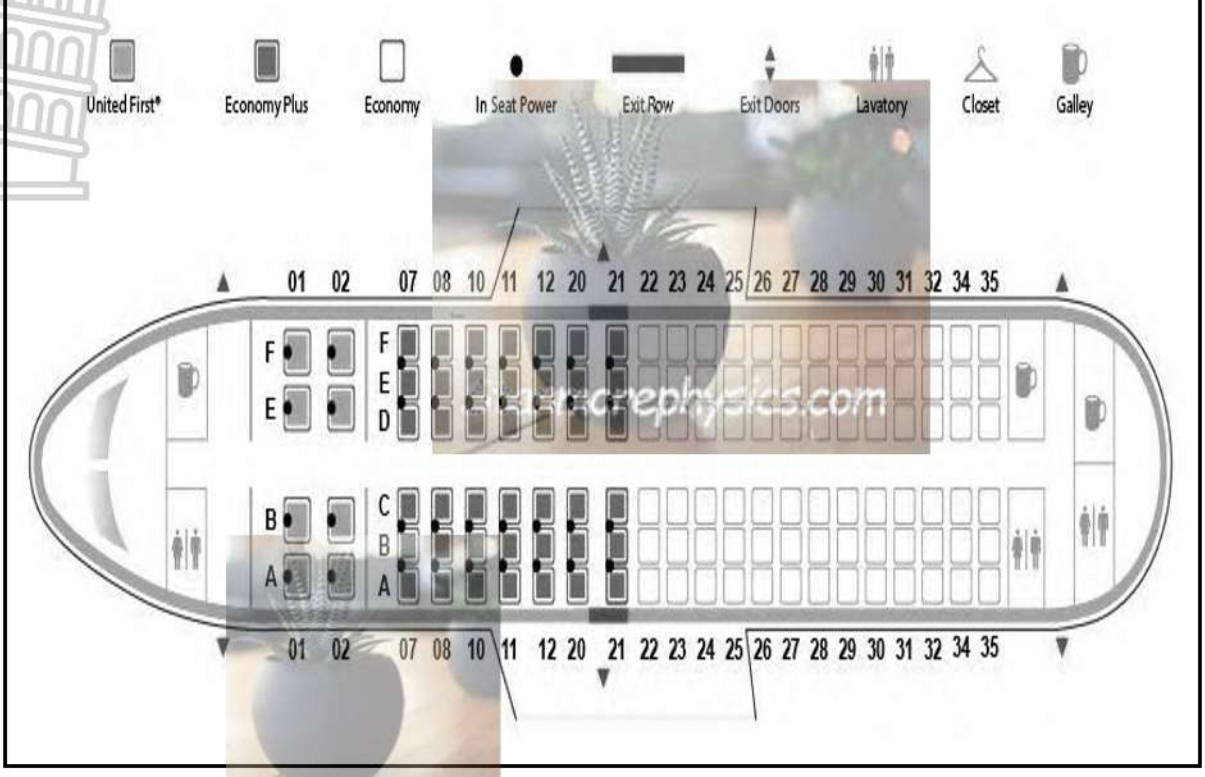
"A diagram having length and with only".

a) 2-D model
b) 3-D model

(2)
[10]

QUESTION 2

Study the seating plan of an airplane (below)and answer the questions that follow.



2.1 Write down the number of exit doors indicated on the seating plan. (2)

2.2 Write down the row numbers of the Economy Plus class seats that have in-seat power. (2)

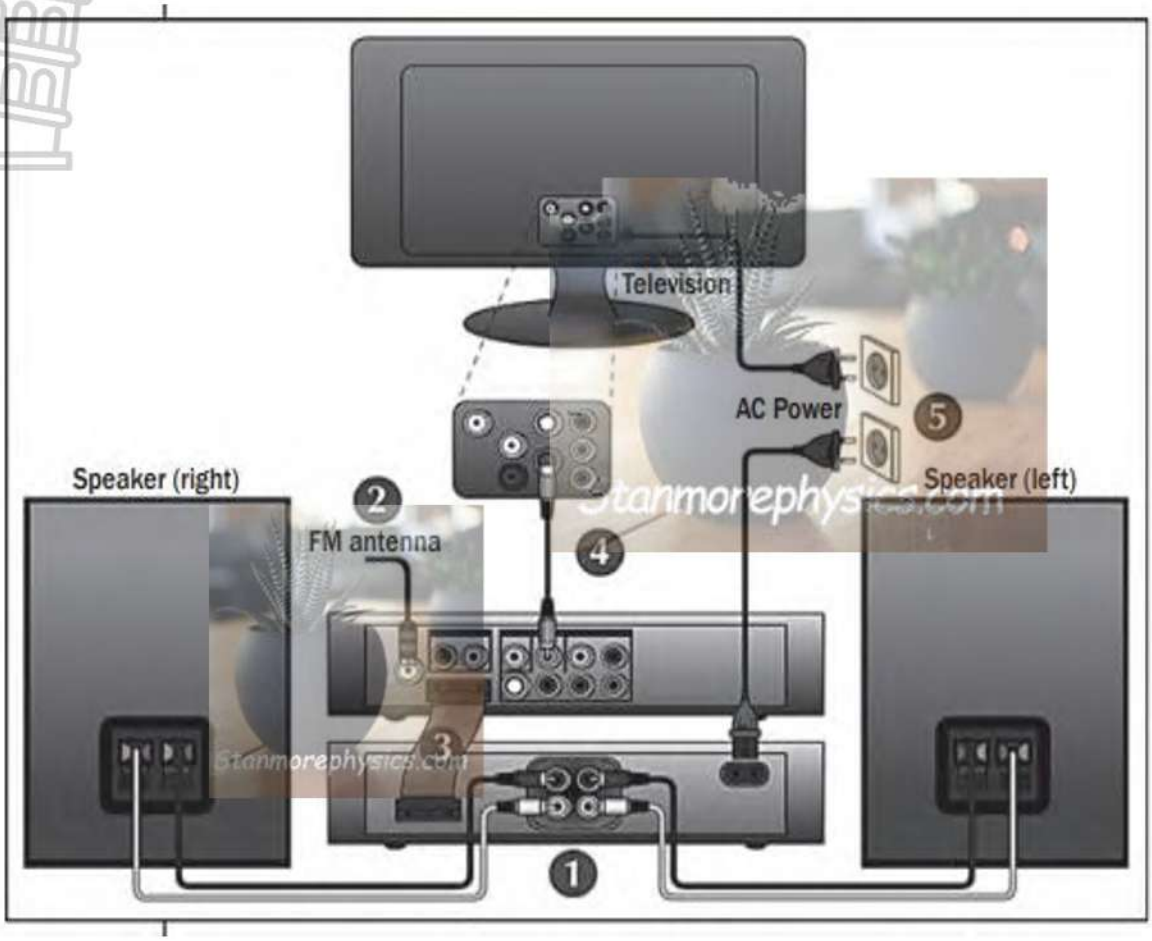
2.3 Identify the exit row. (2)

2.4 The actual length of the airplane (from the cockpit to the end of the passenger cabin) is given as 50 m. If the scale of the seating plan is 1: 200, calculate the length of the airplane on the seating plan in mm. (4)

[10]

QUESTION 3

In the image below, instructions are given in picture form only. Each number on the diagram represents one step in the assembly process.



(5)

You are given five written instructions below. In the table below, match each written step to the step number you think it describes.

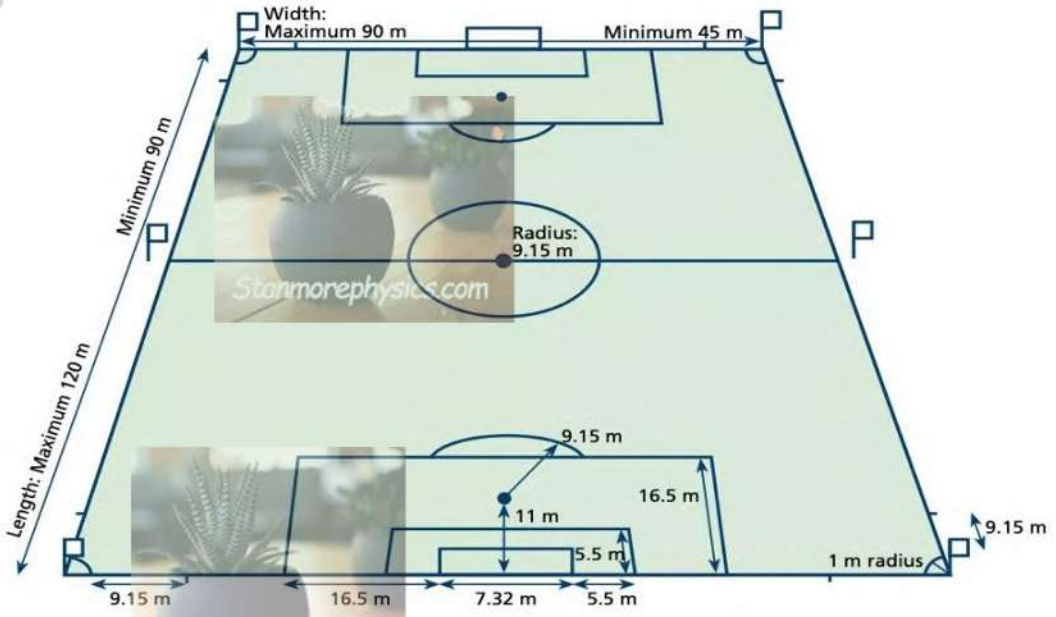
Step number on image	Statement number/description
Step 1	a) Connect the composite video cable to a TV.
Step 2	b) Connect the speaker cables.
Step 3	c) Connect the power cables of the system and TV to AC power.
Step 4	d) Connect the control cable.
Step 5	e) Connect the FM antenna.

[10]

QUESTION 4

Soccer is a highly rated and very popular sport in schools.

Refer to the diagram of a soccer field below and answer the questions that follow.



4.1 Name TWO reasons why it is important for children to participate in sports. (2)

4.2 A soccer player claimed that the area of the centre-circle is 263,056095 m^2.
Verify, showing all calculations, whether his claim is correct or not.

You may use the formula:
Area of circle = πr^2

(3)
[5]

QUESTION 5

Siphokazi and Nomfundo recently bought new house. In the rectangular back yard, the house has a lawn and a rectangular patio as shown in the diagram below. On the diagram, the length of the yard is 6 cm and the width of it 4,5 cm.

5.1 Use the scale of 1:150 to determine the perimeter (in m) of the backyard.
You may use the formula:

Perimeter of a rectangle = 2(length + breadth)

(6)

5.2 Siphokazi and Nomfundo is planning their wedding. Their guests are to sit at circular tables with a diameter of 180 cm. Each guest needs 70 cm around the circumference of the table. There are 18 tables at the venue. They are planning to invite 150 guests to their wedding. They claim that the 18 tables are enough.

Verify, showing ALL calculations whether their claim is valid or not.

You may use the formule:
Circumference = $2 \times \pi \times$ radius

(9)
[15]

TOTAL: 50

JOHANNESBURG WEST DISTRICT

CONTROLLED TEST

GRADE 10

MATHEMATICAL LITERACY

04 SEPTEMBER 2024

MARKING GUIDELINES

MARKS: 50

Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
MCA	Method with Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification/Reason/Explain
S	Simplification
RD	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding Off
NP	No penalty for rounding OR omitting units

These marking guidelines consist of 4 pages.

QUESTION 1 [10 Marks]		
Q	**Solution**	**Explanation**
1.1	Perimeter is the total length/distance around a shape. ✓✓A	2A correct definition (2)
1.2	True ✓✓A	2A correct answer (2)
1.3	Radius = $\frac{20\ cm}{2}$ ✓MA = 10 cm ✓A	1MA dividing by 2 1A correct answer **AO** (2)
1.4	One unit on the map represents 50 000 units in reality ✓✓A	2A correct answer (2)
1.5	2-D model ✓✓A	2A correct answer (2)

QUESTION 2 [10 Marks]		
Q	**Solution**	**Explanation**
2.1	Six **OR** 6 ✓✓A	2A correct answer (2)
2.2	7; 8; 10; 11; 12; 20 and 21 ✓✓A	2A correct answer (2)
2.3	Row 21 ✓✓A	2A correct answer (2)
2.4	Length of the airplane on the plan = 50 m × 1 000 ✓MA = 50 000 ✓A ✓M $= \frac{\mathbf{50\ 000}}{\mathbf{200}}$ = 250 mm ✓CA	1MA times by 1 000 1A answer of 50 000 1M dividing by 200 1CA final answer (4)
		[10]

QUESTION 3 [10 Marks]

Step number on Image	Statement number/description
Step 1	b) Connect the speaker cables. ✓✓A
Step 2	e) Connect the FM antenna. ✓✓A
Step 3	d) Connect the control cable. ✓✓A
Step 4	a) Connect the composite video cable to the TV. ✓✓A
Step 5	c) Connect the power cables of the system and TV to AC power. ✓✓A

QUESTION 4 [5 Marks]

Q	Solution	Explanation
4.1	Participation in sports allows kids to make lasting ✓A friendships, Develop communication skills, ✓A Feel a sense of community, Learn to respect their teammates and coaches. *(Accept any 2 correct/sensible answers)*	1A correct answer 1A correct answer (2)
4.2	Area of circle = πr^2 $= 3{,}142 \times (9{,}15\ m)^2$ ✓SF $= 263{,}056095\ m^2$ ✓A His claim is VALID. ✓J	1SF substitution 1A correct answer 1J justification (3)
		[5]

QUESTION 5 [15 Marks]

Q	Solution	Explanation
5.1	Perimeter of a rectangle = 2 (length + Breadth) = 2 (6 cm + 4,5 cm) ✓SF = 2 (10,5 cm) = 21 cm ✓A ✓M ∴ 21 cm × $\frac{150}{100}$ ✓M = 31,5 m ✓CA ✓U	1SF substitution 1A correct answer 1M times by 150 1M dividing by 100 1CA final answer 1U correct unit (6)
5.2	Circumference = 2 × π × radius ✓A = 2 × 3,142 × (90 cm) ✓SF = 565,56 cm ✓CA ∴ $\frac{565{,}56\ cm}{70\ cm}$ ✓M = 8,079 ✓CA ≈ 8 guests ✓R ✓M ∴ **8 × 18 = 144 *guests*** ✓CA ***∴ No, the 18 tables will not be enough. They will only be able to host 144 guests and not 150*** ✓J	1A correct radius 1SF substitution 1CA answer 1M dividing by 70 1CA answer 1R rounding down 1M times by 18 1CA number of guests 1J justification (9)
		[15]

TOTAL: 50